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THE PRODUCT FORMAT PLAN FOR THE CONVECTIVE WATCH DECENTRALIZATION

National Weather Service Product Format Team*

1 INTRODUCTION AND BACKGROUND

In 1995, the National Severe Storms Forecast Center was administratively partitioned into the Aviation Weather Center (AWC) and the Storm Prediction Center (SPC), both components of the National Centers for Environmental Prediction (NCEP). Responsibility for issuing convective watches currently resides with the SPC, but the NWS proposes to move that function to future Weather Forecast Offices (WFO). Migrating the convective watch responsibility from the SPC to WFOs will be complex due to changes occurring both in the NCEPs and field offices. NWS field office structure is changing from its two-tiered arrangement (NEXRAD Weather Service Forecast Offices--NWSFO and Weather Service Offices) to become single tiered (WFOs). Because of the complexity of reassigning convective watch responsibility amid such dramatic changes, the watch program transfer will be performed incrementally. Each Phase will be preceded by a field test involving the SPC and AWC, field offices, National and Regional Headquarters, and NWS external customers. The program to shift convective watch responsibility, called the Convective Watch Decentralization, will begin in 1997 and will be completed late in 2001. Upon its completion, WFOs will be issuing convective watches for their County Warning and Forecast Area (CWFA) using guidance from the SPC in conjunction with locally acquired information.

One of the functions of the SPC is to serve the WFOS another is to provide products to the private meteorological community. The SPC will serve WFOs by interacting with forecasters using their experience and expertise on specific types of events, some of which will require training and may be rare at any individual locale prior to the completion of that training. Even after implementation of Watch Decentralization, SPC forecasters will keep WFO forecasters advised on areas of potential and ongoing weather hazards through gridded, graphical and narrative messages, guidance, and guidance watches. In addition to WFOS, the suite of products and services from SPC will be useful to other National Centers, to River Forecast Centers (RFC), and to a

wide variety of agencies outside the NWS. Many SPC products will be non-technical or semi-technical, others will be highly technical in nature (as with gridded data).

Product Format.

Product assembly, including both content and format, is a concern that requires specific treatment. The Product Format Team, consisting of NWS field forecasters, Regional program leaders, and commercial providers of weather information, is assembled to examine the viability of the convective watch product suite. Based partly on information obtained from service evaluation and partly on knowledge of hardware/software needs, the Product Format Team is responsible for ensuring convective watch products are transmitted, received and used effectively both internally and externally. Team members were selected based on their interest and expertise in the area of product format and delivery. Specific concerns include the relationship of convective watch products to the Advanced Weather Interactive Processing System (AWIPS), Universal Geographic Codes (UGC), needs of customers regarding presentation of information, and communications technologies,

This plan outlines specific convective watch related products issued by SPC and future WFOs during each Phase of the Decentralization. For each Phase, SPC will be responsible for a variety of guidance as well as internal and external products. In consonance, future WFOs assume responsibility for an increasing number of watch related products. Ensuring that such information is supplied in the format (encoding, presentation, content) needed to meet customer needs is essential for the successful implementation of the watch Decentralization.

2. INCREMENTAL PHASES

The Convective Watch Decentralization will be accomplished over four Phases. Each Phase of the decentralization involves the same progression of events. Each Phase requires 1) beta testing, 2) field testing, 3) operations, and 4) service evaluation of operations. Each operational Phase serves as a risk reduction for the subsequent Phase. This approach to the implementation of Watch Decentralization, minimizes risk. The Product Format Team will review planning and development from the Training and Evaluation Watch Decentralization Teams, including preparation of training plans; field test plans; operational plans, and service evaluation plans.

Once beta test are complete and comments from team members are incorporated into the formats, the plans for field testing have been approved, needed training completed, software/hardware developed, and communications enabled, a field test will assess the usefulness of equipment, products and communications. Service evaluation will parallel each field test, during which time needed adjustments can be made. On the basis of a favorable service evaluation report at the conclusion of each field test, a

decision can be made to proceed with operations.

Once plans for operations have been approved, and necessary administrative procedures taken (WSOM Chapter updates, product change requests, customer notifications, etc.), operations for the Phase may proceed. Again, service evaluation parallels operations, and changes may be made to operational procedures should conditions warrant. A service evaluation report will be made six months after the commencement of each operational Phase. Based on a favorable report, recommendation would be made to the Assistant Administrator for Weather Services (AA) for proceeding with the subsequent Phase.

2.1 PHASE I

Phase I changes the convective watch geometry from a parallelogram to a polygon of not more than six (6) sides. The watch usually covers County Warning and Forecast Areas (CWFA) of multiple NWSFOs and NEXRAD Weather Service Offices (NWSO). Phase I also introduces a product issued by future WFOs (NWSFOs and NWSOS) to issue, clear, and cancel watches, called the Watch County Notification (WCN). It allows external customers, the SPC and AWC to update their watch information based on Universal Geographic Codes (UGC). Successful implementation of Phase I is predicated on the hardware to update the National Warning System (NAWAS) or implement other voice communications technologies at SPC, AWC and future WFOs for use in coordination, as well as computer software at the SPC, AWC, NCEP Central Operations (NCO) and future WFOs to transmit and process watch information. Service evaluation of Phase I operations will enable the AA to make a determination on proceeding with Phase II. WFOs may wish to locally produce and distribute (or make available on their homepages) graphical watch products for their local customers.

During Phase I, the SPC will be responsible for the following products:

- Day One Convective Outlook (AFOS Product SWODY1)
- Day Two Convective Outlook (AFOS Product SWODY2)
- Preliminary Notification of a Watch (AFOS Product SAW)
- SPC Watch County Listing (AFOS Product SEV--internal)
- Public Watch Narrative (AFOS Product SEL)
- Mesoscale Convective Discussion (AFOS Product SWOMCD)
- Watch Status Report (AFOS Product WWA)

Future WFOs will be responsible for:

- Watch County Notification (AFOS Product WCN) for issuing, clearing and cancelling counties in a watch
- Optional Locally Produced Graphic or Image Product

Appendix A of this plan includes examples of each Phase I product, along with its description, purpose, and intended audience.

Beginning with Phase I, SPC also is responsible for performing hourly (increasing to twice an hour in Phase II) checks for WCNs and updating the spatial watch configuration to ship both to AWC and NCEP Central Operations (NCO). AWC will use the SPC information for Convective SIGMETs. NCO will use the SPC watch clearance information to update the depiction of watches on the National Radar Summary chart.

2.2 Phase II

Phase II is the risk reduction for the initial decentralized environment. A subset of contiguous future WFOS, possessing Advanced Weather Interactive Processor (AWIPS) capabilities needed for performing convective watches, will participate. These offices will generate actual watches in real-time, supported by narrative, graphical, probabilistic guidance information and guidance watches from the SPC. The guidance watches will be of sufficient quality that, if need be, they could be released by the WFO without significant changes. The AWC will update convective watch graphics and narrative information for NCO and the National Radar Summary chart every 30 minutes. Evaluation of Phase II will supply information for the AA to make a determination about proceeding with the initial decentralized environment (Phase III).

The Phase II product suite from SPC marks a dramatic change from generating the public watch to providing guidance in support of WFO generated public watches. In addition to the Phase I products the Phase II SPC products include:

- Hazardous Weather Guidance (HWG)
- Guidance Watch (SEV)
- Mesoscale Alerting Message (MAM)

The HWG incorporate and provides added temporal resolution to the day 1 and day 2 outlook, formally supplied by the SWO DY1/DY2. The SEV serves the WFO with needed guidance to generate the public watch. It is formatted in such a way that, if need be, it could be passed on as the watch with little or no modification by the WFO. The MAM provides information analogous to what was supplied in the MCD, with greater specificity and a short term forecast.

The WFO is responsible for Alphanumeric and Graphic/Image:

- Public Watch Narrative (AWIPS Product WCN, WMO header ?)
- Watch Clearance Notification (AWIPS Product WCN, WMO header ?)
- Watch Cancellation Notification (AWIPS Product WCN, WMO header ?)
- Status Report (AWIPS Product WWA)

Appendix B of the this plan provides examples of each Phase II product, including its description, purpose, and intended audience.

2.3 Phase III

Phase III is national implementation of the initial decentralized environment.

In Phase III WFOs generate alphanumeric and graphic/image convective watches based on a gridded, graphical or narrative, probabilistic guidance product from the SPC, a guidance watch product from the SPC, NCEP model guidance, and locally-generated diagnostic and observational information. Phase III (as with Phase II) is predicated on the availability of graphical and/or narrative, probabilistic convective watch guidance (including the guidance watch) from the SPC. Again as with Phase II, it is predicated also on the successful implementation of AWIPS at each WFO with sufficiently robust software to process data sets from multiple sources, to ingest and display gridded or graphical, probabilistic convective watch information from the SPC, to ingest and process a guidance watch from the SPC, and to communicate the WFO watch product locally and nationally. Further, it is predicated on the successful completion by WFO forecasters of specific training modules that address how severe local storms develop, intensify, and generate weather hazards (a detailed Training Plan will be released by OM soon). Finally, it

is predicated on the assurance by the meteorologist-in-charge of each WFO that the Office's forecasters are ready to assume watch responsibility. Service evaluation of Phase III operations will enable the AA to make a determination on proceeding with Phase IV.

Commensurate with the beginning of Phase III, the SPC drops all products that supported Phase I and begins providing Phase III type products for the entire CONUS.

2.4 Phase IV

Phase IV is the fully implemented decentralized environment, using gridded probabilistic guidance from the SPC, WFOs using AWIPS, will locally establish parameters for alert notifications that will allow them to interactively produce locally generated watches. The gridded information will flow into the WFO AWIPS, where product generators use the locally established parameters to create alphanumeric and graphic/image draft watch products. Phase IV is predicated on SPC developing appropriate gridded products on their AWIPS platform that can be transmitted for processing by all AWIPS sites. At this point in time WMO headers will have replaced the nine character AFOS scheme. Service evaluation will be ongoing, and iterative improvements in the convective watch program are expected in Phase IV and beyond.

Substantial work remains to be accomplished by the Watch Decentralization Product Format Team to define the format both of SPC and WFO Phase IV products. It cannot be understated that the successful conduct of a Beta Test that addresses the needs of NWS field forecasters, Regional program leaders, and commercial providers of weather information be conducted before attempting the conduct of each phase of the field test. In addition formats may also need modifications during the testing process based on local and national user needs.

APPENDIX A: PHASE I PRODUCT FORMATS

Future WFO Products for the purpose of issuing, clearing, and canceling convective watches in the WFO's C.A. These products are intended for use in local and national meteorological applications. Three formats have been developed to accommodate regional and local format preferences.

PART ONE: FUTURE ALPHANUMERIC WFO PRODUCTS

ZIP WATCH COUNTY NOTIFICATION FORMAT 1: "AREA OFF"

PURPOSE I: ISSUING

ZCZC ARBWCNGRR
TTAA00 KGRR 121445

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM
WATCH #42
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
945 AM EST WED FEB 12 1997

MIC999-INC999-OHC999-LMC999-122000-

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MIC005-015-067-081-107-117-121-123-127-139-122000-
THE NATIONAL WEATHER SERVICE HAS ISSUED A SEVERE
THUNDERSTORM WATCH IN EFFECT UNTIL 300 PM EST WEDNESDAY
FOR THE FOLLOWING COUNTIES:

IN MICHIGAN:

ALLEGAN	BARRY	IONIA
KENT	MECOSTA	MONTCALM
MUSKEGON	NEWAYGO	OCEANA
OTTAWA		

THIS INCLUDES THE CITIES OF...MUSKEGON...GRAND HAVEN...GRAND
RAPIDS...AND HOLLAND

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A SEVERE THUNDERSTORM WATCH MEANS SEVERE THUNDERSTORMS ARE POSSIBLE IN AND NEAR THE WATCH AREA. BE ON THE WATCH FOR THREATENING WEATHER AND LISTEN TO NOAA WEATHER RADIO... COMMERCIAL RADIO OR TELEVISION FOR FURTHER INFORMATION.

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PURPOSE II: CLEARING

ZCZC ARBWCNGRR
TTAA00 KGRR 131849 AMD

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM
WATCH #43 ...UPDATED
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
149 PM EST THU FEB 13 1997

MIC005-015-081-139-132200-
THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS
CLEARED A PORTION OF SEVERE THUNDERSTORM WATCH #42.
COUNTIES CLEARED FROM THE SEVERE THUNDERSTORM WATCH
INCLUDE:

IN MICHIGAN:

ALLEGAN BARRY KENT
OTTAWA

THIS INCLUDES THE CITIES OF...GRAND HAVEN...GRAND RAPIDS...AND
HOLLAND

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MIC021-027-077-159-132200-
SEVERE THUNDERSTORM WATCH #43 REMAINS VALID UNTIL 500 PM
EST THURSDAY FOR THE FOLLOWING COUNTIES:

IN MICHIGAN:

BERRIEN CASS KALAMAZOO
VAN BUREN

THIS INCLUDES THE CITIES OF...KALAMAZOO...AND BENTON HARBOR

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**PURPOSE III:
CANCELLATION**

ZCZC ARBWCNGRR
TTAA00 KGRR 131852 AMD

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM
WATCH #34 ...UPDATED
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
152 PM EST THU FEB 13 1997

MIC005-015-021-025-027-077-159-132000-
THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS
CLEARED ALL COUNTIES REMAINING IN SEVERE THUNDERSTORM
WATCH #34 COUNTIES CLEARED FROM THE SEVERE THUNDERSTORM
WATCH INCLUDE:

IN MICHIGAN:

ALLEGAN BARRY BERRIEN
CALHOUN CASS KALAMAZOO
VAN BUREN

THIS INCLUDES THE CITIES OF...HOLLAND...KALAMAZOO...BATTLE
CREEK... AND BENTON HARBOR

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MIC999-INC999-OHC999-LMC999-132000-

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**ZIP WATCH COUNTY NOTIFICATION FORMAT 2: AREA "ON" AREA
CITY "OFF"**

**PURPOSE I:
ISSUING**

ZCZC ARBWCNGRR
TTAA00 KGRR 121452

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORMS
WATCH #47
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
952 AM EST WED FEB 12 1997

MIC999-INC999-OHC999-LMC999-122000-

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MIC005-015-021-023-025-027-045-067-077-081-107-117-121-123-127-139-
149-159-122000-

THE NATIONAL WEATHER SERVICE HAS ISSUED A SEVERE
THUNDERSTORM WATCH IN EFFECT UNTIL 300 PM EST WEDNESDAY
FOR THE FOLLOWING COUNTIES:

IN CENTRAL COASTAL MICHIGAN:
MUSKEGON OCEANA OTTAWA

IN WEST CENTRAL MICHIGAN:

IONIA KENT MECOSTA
MONTCALM NEWAYGO

IN CENTRAL MICHIGAN:

EATON

IN SOUTHWEST COASTAL MICHIGAN:

ALLEGAN BERRIEN CASS
VAN BUREN

IN SOUTH CENTRAL MICHIGAN:

BARRY BRANCH CALHOUN
KALAMAZOO ST JOSEPH

THIS INCLUDES THE CITIES OF...MUSKEGON...GRAND HAVEN...GRAND
RAPIDS...HOLLAND...KALAMAZOO...BATTLE CREEK...AND BENTON
HARBOR

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PURPOSE II:
CLEARING

ZCZC ARBWNCGRR
TTAA00 KGRR 131841 AMD

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM
WATCH #48 ...UPDATED
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
141 PM EST THU FEB 13 1997

MIC067-081-121-139-132200-
THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS
CLEARED A PORTION OF SEVERE THUNDERSTORM WATCH #48.
COUNTIES CLEARED FROM THE SEVERE THUNDERSTORM WATCH
INCLUDE:

IN CENTRAL COASTAL MICHIGAN:
MUSKEGON OTTAWA

IN WEST CENTRAL MICHIGAN:
IONIA KENT

THIS INCLUDES THE CITIES OF...MUSKEGON...GRAND HAVEN...AND
GRAND RAPIDS

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MIC005-015-077-159-132200-
SEVERE THUNDERSTORM WATCH #48 REMAINS VALID UNTIL 500 PM
EST THURSDAY FOR THE FOLLOWING COUNTIES:

IN SOUTHWEST COASTAL MICHIGAN:
ALLEGAN VAN BUREN

IN SOUTH CENTRAL MICHIGAN:
BARRY KALAMAZOO

THIS INCLUDES THE CITIES OF...HOLLAND...AND KALAMAZOO

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PURPOSE III:

CANCELING
ZCZC ARBWCNGRR
TTAA00 KGRR 131843 AMD

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM
WATCH #32 ...UPDATED
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
143 PM EST THU FEB 13 1997

MIC005-015-077-159-132200-

THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS
CLEARED ALL COUNTIES REMAINING IN SEVERE THUNDERSTORM
WATCH #32.

COUNTIES CLEARED FROM THE SEVERE THUNDERSTORM WATCH
INCLUDE:

IN SOUTHWEST COASTAL MICHIGAN:

ALLEGAN VAN BUREN

IN SOUTH CENTRAL MICHIGAN:

BARRY KALAMAZOO

THIS INCLUDES THE CITIES OF...HOLLAND...AND KALAMAZOO

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MIC999-INC999-OHC999-LMC999-132200-

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**ZIP WATCH COUNTY NOTIFICATION FORMAT 3: AREA "ON" AREA
CITY "ON"**

**PURPOSE I:
ISSUING**

ZCZC ARBWCNGRR
TTAA00 KGRR 131723

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM
WATCH #34
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
1223 PM EST THU FEB 13 1997

MIC999-INC999-OHC999-LMC999-132000-

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MIC005-021-027-067-081-117-121-123-139-159-132000-
THE NATIONAL WEATHER SERVICE HAS ISSUED A SEVERE
THUNDERSTORM WATCH IN EFFECT UNTIL 300 PM EST THURSDAY
FOR THE FOLLOWING COUNTIES:

IN CENTRAL COASTAL MICHIGAN:
MUSKEGON OTTAWA

THIS INCLUDES THE CITIES OF...MUSKEGON...AND GRAND HAVEN

IN WEST CENTRAL MICHIGAN:
IONIA KENT MONTCALM
NEWAYGO

THIS INCLUDES THE CITY OF GRAND RAPIDS

IN SOUTHWEST COASTAL MICHIGAN:
ALLEGAN BERRIEN CASS
VAN BUREN

THIS INCLUDES THE CITIES OF...HOLLAND...AND BENTON HARBOR

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PURPOSE II:
CLEARING

ZCZC ARBWCNGRR
TTAA00 KGRR 131815 AMD

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM

WATCH #33 ...UPDATED
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
115 PM EST THU FEB 13 1997

MIC067-081-121-139-132200-
THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS
CLEARED A PORTION OF SEVERE THUNDERSTORM WATCH #33.
COUNTIES CLEARED FROM THE SEVERE THUNDERSTORM WATCH
INCLUDE:

IN CENTRAL COASTAL MICHIGAN:
MUSKEGON OTTAWA

THIS INCLUDES THE CITIES OF...MUSKEGON...AND GRAND HAVEN

IN WEST CENTRAL MICHIGAN:
IONIA KENT

THIS INCLUDES THE CITY OF GRAND RAPIDS

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MIC021-023-025-027-077-149-159-132200-
SEVERE THUNDERSTORM WATCH #33 REMAINS VALID UNTIL 500 PM
EST THURSDAY FOR THE FOLLOWING COUNTIES:

IN SOUTHWEST COASTAL MICHIGAN:
BERRIEN CASS VAN BUREN

THIS INCLUDES THE CITY OF BENTON HARBOR

IN SOUTH CENTRAL MICHIGAN:
BRANCH CALHOUN KALAMAZOO
ST JOSEPH

THIS INCLUDES THE CITIES OF...KALAMAZOO...AND BATTLE CREEK

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PURPOSE III:

CANCELING

ZCZC ARBWCNGRR
TTAA00 KGRR 131821 AMD

WATCH COUNTY NOTIFICATION FOR SEVERE THUNDERSTORM
WATCH #39 ...UPDATED
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
121 PM EST THU FEB 13 1997

MIC021-023-025-027-077-149-159-132200-
THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS
CLEARED ALL COUNTIES REMAINING IN SEVERE THUNDERSTORM
WATCH #39.
COUNTIES CLEARED FROM THE SEVERE THUNDERSTORM WATCH
INCLUDE:

IN SOUTHWEST COASTAL MICHIGAN:
BERRIEN CASS VAN BUREN

THIS INCLUDES THE CITY OF BENTON HARBOR

IN SOUTH CENTRAL MICHIGAN:
BRANCH CALHOUN KALAMAZOO
ST JOSEPH

THIS INCLUDES THE CITIES OF...KALAMAZOO...AND BATTLE CREEK

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MIC999-INC999-OHC999-LMC999-132200-

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PART TWO:

FUTURE WFO GRAPHIC OR IMAGE PRODUCTS

Graphic or Image products have not been developed for WFOs at this point in time, offices may wish to format the ZIP county display into a PCX or GIF file for display on their homepage.

PARTS THREE AND FOUR:

INTERACTIVE COMPUTER WORDED FORECAST (ICWF) ALPHANUMERIC AND GRAPHIC OR IMAGE PRODUCTS:

Presently these products are in the final stage of development and TDL will provide them when the development is complete.

PART FIVE:

SPC ALPHANUMERIC PRODUCTS

Not all of the SPC alphanumeric products have not been updated to reflect format changes that have been agreed to by the Product Format Team during the last four months. The SAW, SEL and SEV formats have been updated the Convective Outlooks (SWODY1, SWODY2), Mesoscale Convective Discussion (MCD), and Watch Status Report (WWA) will be update soon to reflect the minor changes in format.

PRODUCT 1:

PRELIMINARY NOTIFICATION OF A WATCH (SAW)

The SAW provides preliminary notification of a watch is primarily an internal NWS product but is widely used in the private sector as well, it is intended to be computer readable and plotable and provides the earliest notification that a watch will be issued. The Interactive Computer Worded Forecast (ICWF) uses this product to display the initial watch area graphically..

ZCZC

MKCSAW8 ALL 180300;450,0840 440,0860 420,0840 420,0850 430,0840
440,0840;

WWUS40 KMKC 172105

MKC AWW 172105

WW #888 TORNADO MI 172130Z - 180300Z
AVIATION COORDS..20SW APN..20SE MBL..20E BEH..30SW JXN..15NW
FNT..40N MBS..20SW APN HAIL SURFACE AND ALOFT..2 INCHES. WIND
GUSTS..60 KNOTS. MAX TOPS..550. MEAN STORM MOTION
VECTOR..25040.

FOR FURTHER DETAILS ... REFER TO MKCSEL8.

;450,0840 440,0860 420,0840 420,0850 430,0840 440,0840;

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PRODUCT 2:
SPC PUBLIC WATCH NARRATIVE (SEL)

The SEL provides plain language text and computer readable headers to provide quantitative information about the magnitude of expected weather as well as an aviation portion and some forecast reasoning. The product is intended for public and private meteorologist.

ZCZC

MKCSEL8 ALL 180300;450,0840 440,0860 420,0840 420,0850 430,0840
440,0840;

WWUS9 KMKC 172105

MKC WW 172105

MIZ000-180300-

BULLETIN - IMMEDIATE BROADCAST REQUESTED
TORNADO WATCH #888
STORM PREDICTION CENTER NORMAN OK
505 PM EDT THU APR 17 1996

THE STORM PREDICTION CENTER HAS ISSUED A TORNADO WATCH
FOR ALL OR PORTIONS OF:

LOWER MICHIGAN

EFFECTIVE THIS THURSDAY AFTERNOON AND EVENING FROM 530 PM UNTIL 11 PM EDT.

THIS IS A PARTICULARLY DANGEROUS SITUATION WITH THE POSSIBILITY OF VERY DAMAGING TORNADOES

A TORNADO WATCH MEANS CONDITIONS ARE FAVORABLE FOR SEVERE THUNDERSTORMS AND TORNADOES IN AND CLOSE TO THE WATCH AREA. THUNDERSTORMS IN THE WATCH AREA MAY ALSO PRODUCE HAIL UP TO 2 INCHES IN DIAMETER... WIND GUSTS TO 70 MPH... AND DANGEROUS LIGHTNING. PERSONS IN THESE AREAS SHOULD BE ON THE LOOKOUT FOR THREATENING WEATHER CONDITIONS AND LISTEN FOR LATER STATEMENTS AND POSSIBLE WARNINGS.

OTHER WATCH INFORMATION...THIS WATCH REPLACES SEVERE THUNDERSTORM WATCH 887. WATCH NUMBER 887 WILL NOT BE IN EFFECT AFTER 530 PM EDT. CONTINUE WW 886.. WW 885.

DISCUSSION ... RAPID THUNDERSTORM DEVELOPMENT IN NORTHWESTERN LOWER MICHIGAN EXPECTED TO CONTINUE IN AXIS OF BEST SURFACE CONVERGENCE AND INSTABILITY. THUNDERSTORMS EXPECTED TO BUILD SOUTH AND MOVE EAST SOUTHEAST ACROSS DEW POINT AXIS IN RESPONSE TO WEAK UPPER LEVEL IMPULSE. AIR MASS UNSTABLE WITH LIFTED INDICES TO MINUS 10. FAVORABLE VERTICAL WIND PROFILE WILL SUPPORT ISOLATED SUPERCELLS WITH POSSIBLE TORNADOES.

AVIATION ... A FEW SEVERE THUNDERSTORMS AND TORNADOES WITH HAIL SURFACE AND ALOFT TO 2 INCHES ... EXTREME TURBULENCE AND SURFACE WIND GUSTS TO 60 KNOTS. A FEW CUMULONIMBI WITH MAXIMUM TOPS TO 550. MEAN STORM MOTION VECTOR 25040.

SEE REDEFINING STATEMENTS APNWCNAPN... GRRWCNGRR... DTXWCNDTX. FOR COUNTIES INCLUDED IN THE WATCH AREA.

...GALWAY

;450,0840 440,0860 420,0840 420,0850 430,0840 440,0840;

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PRODUCT 3:
SPC CONVECTIVE WATCH COUNTY LISTING (SEV)

The SEV is county listing, by state, of all of the counties in a watch area. It is the product that the ZIP Software uses to produce the county listings by WFO. It has computer readable header and trailer information for use by both public and private meteorologist.

ZCZC

MKCSEV[#] ALL DDHHMM;LAT, LONG LAT, LONG LAT, LONG LAT, LONG
LAT, LONG LAT, LONG;
TTAA00 KMKC ddhhmm

. [TYPE] WATCH #[XXXX] HAS BEEN ISSUED BY THE STORM
PREDICTION CENTER
EFFECTIVE THIS [DAY AM/PM] FROM [H AM/PM] UNTIL [H AM/PM]
[EST/EDT/CST/CDT/MST/MDT/PST/PDT].
\$\$

[ST]
. [STATE] COUNTIES [OR PARISHES] INCLUDED ARE

[COUNTY 1] [COUNTY 2] [COUNTY n]
\$\$

;LAT, LONG LAT, LONG LAT, LONG LAT, LONG LAT, LONG LAT, LONG;
NNNN

PRODUCT 4: DAY 1 CONVECTIVE OUTLOOK (MKCSWODY1)

ZCZC

MKCSWODY1

ACUS1 KMKC 290621

SWODY1

MKC AC 290621

CONVECTIVE OUTLOOK...REF AFOS NMCGPH940.

VALID 291200Z - 301200Z

THERE IS A MODERATE RISK OF SEVERE THUNDERSTORMS TO THE RIGHT OF A LINE FROM MCW LSE VOK 30 SE OSH MKG AZO MIE BMG CGI 40 NE UNO 30 W TBN SZL P35 10 NE DSM MCW.

THERE IS A SLIGHT RISK OF SEVERE THUNDERSTORMS TO THE RIGHT OF A LINE FROM 20 E CSM 25 E P28 HUT SLN CNK OLU OTG MSP IMT ESC 25 ENE PLN 45 ESE OSC MFD CMH LEX BWG MEM PBF 45 ENE ACT ACT 25 SE BWD 30 NE SJT 45 W ABI 50 NE BGS 40 S CDS 20 E CSM.

GENERAL THUNDERSTORMS ARE FORECAST TO THE RIGHT OF A LINE FROM 65 SSW GDP 20 E CNM LBB 40 ESE AMA 55 W GAG 15 SE 1K5 15 NE CAO LVS ABQ GNT GUP 60 SSE U17 U17 4HV U28 50 WSW RWL CPR P05 PIR 50 SSE FAR HIB ELO 50 ENE ELO ...CONT... 20 WSW ERI YNG PKB 10 NNW JKL 35 NW MSL GWO 25 NW ESF 40 SSW CLL SAT DRT.

...SEVERE THUNDERSTORM FORECAST DISCUSSION...

--- SYNOPSIS ---

NO ETA MODEL DATA AVAILABLE FROM 29/00Z. HOWEVER...SYSTEM IS LIFTING OUT OF LONGWAVE POSITION SLIGHTLY FARTHER NORTH THAN PROGGED BY 28/12Z MODELS...AND THOUGH WELL INITIALIZED BY 29/00Z NGM...MAY TRACK LEFTWARD FROM ITS FORECAST. AS TROUGH LIFTS NORTHEASTWARD...STRONG DRY PUNCH AND LIFTING WILL OCCUR FROM NEAR SURFACE THROUGH MID LEVELS...AS COLD FRONT MOVES EASTWARD ACROSS OUTLOOK AREA. NORTHWARD MODEL BIAS HAS BEEN OBSERVED TO A MUCH GREATER DEGREE BEFORE WITH SIMILAR EJECTIONS OF SOUTHWESTERN CONUS CYCLONES...AND MODELS WERE VERY CONSISTENT WITH ONE ANOTHER...SO MODEL PERFORMANCE WITH THIS PATTERN SO FAR APPEARS REMARKABLY GOOD. THIS CONFIDENCE COMBINED WITH THE LATEST SATELLITE/RAOB TRENDS JUSTIFY ONLY MINOR ADJUSTMENTS TO PREVIOUS DAY 2 SEVERE THREAT AREAS.

--- MODERATE RISK AND ADJACENT PORTIONS OF MIDWEST ---

VAD/PROFILER DATA SHOWS 50-60 KT LLJ ALREADY UNDERWAY OVER WESTERN/NORTHWESTERN TX AND WESTERN OK...WHICH WILL SHIFT/SPREAD NORTHEASTWARD ACROSS KS/MO/IA BY BEGINNING OF PERIOD.

RESULTING STRONG LOW LEVEL THETA-E ADVECTION WILL AID DESTABILIZATION AND INCREASE VERTICAL SHEAR PROFILES BEFORE STRONGEST LIFT AND MID-LEVEL COOLING REACH REGION IN ADVANCE OF EJECTING MID/UPR LEVEL TROUGH. MODIFIED FORECAST SOUNDINGS SHOW NEARLY MOIST LAPSE RATES THROUGH A DEEP LAYER AHEAD OF DRY SLOT...CAPE RANGING FROM 500-1500 J/KG AND -1 TO -3 LI...AND INSTABILITY GENERALLY DECREASING WITH NORTHWARD EXTENT OVER MIDDLE MISSISSIPPI VALLEY AND GREAT LAKES REGION. DYNAMIC AND KINEMATIC

SUPPORT ARE QUITE INTENSE. STRONG GRADIENT FLOW AT ALL LEVELS ASSOCIATED WITH TROUGH AND marginally SUFFICIENT DESTABILIZATION SHOULD YIELD A SIGNIFICANT CONVECTIVE WIND DAMAGE THREAT OVER MID/UPR MISSISSIPPI VALLEY AND PORTIONS OF SOUTHERN/WESTERN GREAT LAKES REGION. ALSO...PROGGED STORM-RELATIVE VERTICAL SHEAR PROFILES SUPPORT TORNADIC SUPERCELLS...BUT SCOPE AND LONGEVITY OF TORNADO THREAT IS STILL IN QUESTION DUE TO LIMITED INSTABILITY.

A PUBLIC SEVERE WEATHER OUTLOOK...UNDER AFOS HEADER PWOMKC...MAY BE REQUIRED LATER THIS MORNING IF DEVELOPMENT OF SEVERE THREAT PROCEEDS AS EXPECTED.

--- SOUTHERN/SOUTHWESTERN SLIGHT RISK...TX/OK/AR ---
STRONG...POSSIBLY SEVERE CONVECTION WILL BE ONGOING AT BEGINNING OF PERIOD OVER WESTERN PORTIONS OF THIS REGION...ALONG LEADING EDGE OF STRONGEST MID-LEVEL COLD ADVECTION AND DRY SLOT. SEVERE SQUALL LINE...POSSIBLY WITH A FEW EMBEDDED BOW ECHOES AND LEWPS PRODUCING DAMAGING WINDS...ARE POSSIBLE. THIS CONVECTION WILL MOVE EASTWARD AND NORTHEASTWARD ACROSS THE REGION DURING THIS MORNING AND EARLY AFTERNOON. ALTHOUGH LOW-LEVEL INSTABILITY WILL INCREASE OVER MUCH OF THIS AREA DURING THE AFTERNOON...THIS WILL BE COUNTERACTED SIGNIFICANTLY BY WEAKENING TRENDS IN DEEP-LAYER FLOW AND LAPSE RATES aloft AS TROUGH MOVES TO THE NORTH-NORTHEAST.

..EDWARDS.. 10/29/96

...GENERAL THUNDERSTORM FORECAST DISCUSSION...

--- CENTRAL ROCKIES AND ADJACENT HIGH PLAINS ---
WIDELY SCATTERED THUNDERSTORMS ARE POSSIBLE...PRIMARILY UNDER COLD CORE ASSOCIATED WITH MID/UPR LEVEL TROUGH. ACTIVITY SHOULD SHIFT FROM CENTRAL ROCKIES EARLY IN PERIOD ACROSS CENTRAL PLAINS IN CLOSE CORRELATION TO TRACK OF STRONGEST MID-LEVEL VORTICITY FIELD.
..EDWARDS.. 10/29/96

PRODUCT 5: Day Two Convective Outlook (MKCSWODY2):

ZCZC
MKCSWODY2
ACUS2 KMKC 291737
SWODY2
MKC AC 291737

2ND DAY SEVERE CONVECTIVE OUTLOOK...REF AFOS NMCGPH980.
GENERAL THUNDERSTORMS NOT INCLUDED.

VALID 301200Z - 311200Z

THERE IS A SLIGHT RISK OF SEVERE THUNDERSTORMS TO THE RIGHT OF A LINE FROM 20 NNE PBG PSF EWR NHK SHD MGW PIT ERI.

...NY/PA/MD/NORTHERN VA...

VIGOROUS UPPER TROUGH CURRENTLY OVER THE CENTRAL PLAINS IS FORECAST TO SWEEP NORTHEASTWARD ACROSS THE GREAT LAKES REGION AND INTO SOUTHEASTERN CANADA ON WEDNESDAY. MEANWHILE...ASSOCIATED SURFACE COLD FRONT WILL EXTEND ACROSS WESTERN NY/PA AT BEGINNING OF PERIOD...MOVING INTO WESTERN NEW ENGLAND BY EVENING. ATMOSPHERE AHEAD OF FRONT IS FORECAST TO BE ONLY marginally UNSTABLE WITH LIFTED INDICES OF 0 TO -1. HOWEVER...90-100 KT WESTERLY MID-LEVEL WINDS AND STRONG CONVERGENCE ALONG FRONT SUGGESTS POTENTIAL FOR NARROW LINE OF LOW-TOPPED SHOWERS AND THUNDERSTORMS CAPABLE OF PRODUCING DAMAGING WINDS.

...SOUTHERN CA...

UPPER LOW OFF THE CENTRAL CALIFORNIA COAST IS ALSO FORECAST TO TRACK SOUTHEASTWARD INTO CALIFORNIA BY TOMORROW AFTERNOON. ATMOSPHERE SHOULD BE marginally UNSTABLE IN VICINITY OF SYSTEM WITH SCATTERED THUNDERSTORMS POSSIBLE...AND SOME THREAT OF ISOLATED STORMS PRODUCING DAMAGING WINDS. HOWEVER...WILL NOT OUTLOOK AT THIS TIME DUE TO UNCERTAINTY OF TIMING AND RATHER WEAK LOW-LEVEL WINDS.

..HART.. 10/29/96

PRODUCT 6: MESOSCALE CONVECTIVE DISCUSSION (MCD):

ZCZC

MKCSWOMCD ALL;303,1009 311,0965 322,0947 315,0947 302,0947
283,1009;
ACUS3 KMKC 251748

MKC MCD 251748

SPC MESOSCALE DISCUSSION FOR SOUTHEASTERN TEXAS
CONCERNING...SEVERE THUNDERSTORM POTENTIAL...

CONVECTION CONTINUES TO SLOWLY INCREASE OVER PARTS OF
SOUTHEASTERN TEXAS AND ADJACENT GULF WATERS OVER THE PAST FEW
HOURS. WAVE IMAGERY INDICATED A SHORT WAVE TROUGH WITH
ASSOCIATED DRY MID LEVEL AIRMASS WAS NEARING THE TEXAS
COASTAL BEND AT THIS MOMENT...WHERE THE AIRMASS HAD BECOME
MODERATELY UNSTABLE. CURRENT SURFACE BASED LIFTED INDICES
RANGED FROM -3 TO -6. LATEST DOPPLER IMAGERY FROM CORPUS
CHRISTI AND HOUSTON-GALVESTON INDICATED ACTIVITY NEARING THE
TEXAS COAST SOUTHEAST OF MATAGORDA COUNTY HAS PERSISTENT WEAK
MID LEVEL ROTATION. CURRENT VAD WIND PROFILES SUPPORT
EARLIER MODELS IN INCREASING UPPER LEVEL SOUTHWESTERLY FLOW
ASSOCIATED WITH SHORT WAVE WHICH WILL LIKEWISE INCREASE DEEP
LAYER SHEAR ACROSS THIS REGION OVER THE NEXT SEVERAL HOURS.

WARM FRONT LOCATED ACROSS SOUTHERN TEXAS/NORTHWESTERN GULF OF
MEXICO SHOULD LIFT NORTHWARD THIS AFTERNOON...WHILE NUMEROUS
MESOSCALE COASTAL/OUTFLOW BOUNDARIES PERSIST ACROSS THIS
AREA. THIS SHOULD ALLOW CONVECTION TO BECOME NEAR SURFACE
BASED...INCREASING POTENTIAL FOR ISOLATED TORNADOES.

IF THUNDERSTORMS CONTINUE TO INCREASE...A WEATHER WATCH MAY
BE NEEDED IN THE NEXT HOUR OR SO.

..EVANS.. 10/25/96

PRODUCT 7: SPC WATCH STATUS REPORT (WWA)

ZCZC

MKCWWAMKC ALL 250100;285,0974 295,0975 305,0933 300,0933

293,0933272,0974;

WWUS8 KMKC 242305

MKC WWA 242305

STATUS REPORT ON WW NUMBER 1093

SUPERCELLS DEVELOPING IN NORTHEASTERN TEXAS CONTINUE HEADING 250/16 KTS..TOWARD SOUTHWESTERN ARKANSAS AND NORTHWESTERN LOUISIANA. RECENT VOLUME SCANS HAVE SHOWN STRONG AND INCREASING MID-LEVEL ROTATIONAL VELOCITIES WITH THESE STORMS AND A TORNADO WAS REPORTED IN BOWIE COUNTY IN THE PAST HOUR.

APPEARS THAT THE SEVERE THREAT FOR THE NEXT SEVERAL HOURS WILL BE CONFINED TO EXTREME NORTHEASTERN TEXAS...SOUTHERN ARKANSAS... AND NORTHERN LOUISIANA. WARM FRONTAL BOUNDARY NOT EXPECTED TO PUSH MUCH FARTHER NORTH OVER ARKANSAS THIS AFTERNOON. ENHANCED SURFACE COOL POCKET DUE TO EFFECTS OF PREVIOUS CONVECTION AND FRONTOGENESIS OVER WESTERN LA WILL KEEP BEST INSTABILITY CONFINED TO THESE AREAS.

WEATHER WATCH WILL CONTINUE THROUGH 0100 UTC EXPIRATION TIME. WARM SECTOR WILL BE CLOSELY MONITORED DURING THE REST OF THE EVENING FOR SIGNS OF NORTHWARD ADVANCEMENT.

..CRAVEN.. 10/24/97

NNNN

PART 6:

SPC GRAPHIC AND IMAGE PRODUCTS

The 94O and 98O, the day 1 and day 2 Severe Weather Outlooks will soon be added to this area.

APPENDIX B:

PHASE II PRODUCT FORMATS

TO BE ADDED SOON

